

IN THE CLAIMS:

1. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light irradiated by the illuminating device, presets wherein at least two different illuminating conditions variables comprising a light-emitting amount and a light-emitting time, as well as the change in at least one illuminating variable between image acquisition cycles, are preset, and a switching order thereof in a state where the illuminating light [[has]] having the same wavelength band from one image acquisition cycle to the next image acquisition cycle the at least two different illuminating conditions being a light emitting amount or light emitting time, and automatically switches the illuminating conditions from a first illuminating condition corresponding to a first image acquisition cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;

an image pick-up device for sequentially picking up, ~~in a state where the illuminating light has the same wavelength band, images~~ image data of the body cavity a subject, which is irradiated with illuminating light under the different illuminating conditions which are different according to the switching by the switching device;

a setting device which sets the light-emitting amount or light-emitting time; and

a radio device ~~[[which]] for extracorporeally transmitting transmits by radio waves the image data obtained under each of the different illuminating conditions~~ by the image pick-up device.

2. (Canceled)

3. (Previously Presented) A capsule endoscope apparatus according to Claim 1, wherein the setting device is a storing device which stores information for setting the light-emitting amount or light-emitting time.

4. (Original) A capsule endoscope apparatus according to Claim 1, wherein the illuminating device comprises a white LED.
5. (Original) A capsule endoscope apparatus according to Claim 1, wherein the illuminating device comprises an electroluminescence.
6. (Currently Amended) A capsule endoscope apparatus according to Claim 1, wherein ~~the at least two different illuminating conditions are a light-emitting amount or light-emitting time and a signal gain of the image pick-up device is proportional to the light-emitting amount or light-emitting time.~~
7. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light irradiated by the illuminating device, presets wherein at least two different illuminating conditions variables comprising a light-emitting amount and a light-emitting time, as well as the change in at least one illuminating variable between image acquisition cycles, are preset, and a switching order thereof in a state where the illuminating light [[has]] having the same wavelength band from one image acquisition cycle to the next image acquisition cycle the at least two different illuminating conditions being a light-emitting amount or light-emitting time, and automatically switches the illuminating conditions from a first illuminating condition corresponding to a first image acquisition cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;

an image pick-up device for sequentially picking up, ~~in a state where the illuminating light has the same wavelength band, images~~ image data of the body cavity a subject, which is irradiated with illuminating light under the different illuminating conditions which are different according to the switching by the switching device;

a selecting device which extracts an image with a wide dynamic range from two or more pieces of image data obtained by the image pick-up device; and

a setting device which sets the light-emitting amount or light-emitting time; and

a radio device which transmits by radio waves the image data obtained by the selecting device.

8. (Previously Presented) A capsule endoscope apparatus according to Claim 7, wherein a luminance distribution of the image data is used as a comparison standard for extracting the image with a wide dynamic range by the selecting device.

9. (Previously Presented) A capsule endoscope apparatus having an illuminating device, an image pick-up device for picking up an image of an illuminated portion, and a radio transmitting device, the capsule endoscope apparatus comprising:

the illuminating device comprising a switching device which switches one of a light-emitting amount and a light-emitting time;

a selecting device which extracts an image with a wide dynamic range from the two or more pieces of image data obtained by the image pick-up device upon sequentially switching one of the light-emitting amount and light-emitting time; and

a radio device which transmits by radio waves the image data obtained by the selecting device;

wherein a luminance distribution of the image data is used as a comparison standard for extracting the image with a wide dynamic range by the selecting device and the selecting device selects the image data with a widest luminance distribution of the image data.

10. (Previously Presented) A capsule endoscope apparatus according to Claim 7, wherein an amount of data after compressing the image data is used as a comparison standard for extracting the image with a wide dynamic range by the selecting device.

11. (Previously Presented) A capsule endoscope apparatus having an illuminating device, an image pick-up device for picking up an image of an illuminated portion, and a radio transmitting device, the capsule endoscope apparatus comprising:

the illuminating device comprising a switching device which switches one of a light-emitting amount and a light-emitting time;

a selecting device which extracts an image with a wide dynamic range from the two or more pieces of image data obtained by the image pick-up device upon sequentially switching one of the light-emitting amount and light-emitting time; and

a radio device which transmits by radio waves the image data obtained by the selecting device;

wherein an amount of data after compressing the image data is used as a comparison standard for extracting the image with a wide dynamic range by the selecting device and the selecting device selects the image having a largest amount of compressed image data.

12. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light

~~irradiated by the illuminating device, presets wherein at least two different illuminating conditions~~
~~variables comprising a light-emitting amount and a light-emitting time, as well as the change in at~~
~~least one illuminating variable between image acquisition cycles, are preset, and a switching order~~
~~thereof in a state where the illuminating light [[has]] having the same wavelength band from one~~
~~image acquisition cycle to the next image acquisition cycle the at least two different illuminating~~
~~conditions being a light emitting amount or light emitting time, and automatically switches the~~
~~illuminating conditions from a first illuminating condition corresponding to a first image acquisition~~
~~cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;~~

~~an image pick-up device for sequentially picking up, in a state where the illuminating light has~~
~~the same wavelength band, images image data of the body cavity a subject, which is irradiated with~~
~~illuminating light under the different illuminating conditions which are different according to the~~
~~switching by the switching device;~~

~~a setting device which sets the light-emitting amount or light-emitting time;~~

~~a radio device which transmits by radio waves the image data obtained by the image pick-up~~
~~device;~~

~~a selecting device which extracts an image with a wide dynamic range from two or more~~
~~pieces of transmission image data transmitted by the radio device; and~~

~~a recording device which records the transmitted image data selected by the selecting device.~~

13. (Previously Presented) A capsule endoscope apparatus according to Claim 12, wherein a
luminance distribution of the transmitted image data is used as a comparison standard for extracting
the image with the wide dynamic range by the selecting device.

14. (Previously Presented) A capsule endoscope system having an illuminating device, an image
pick-up device for picking up an image of an illuminated portion, and a radio transmitting device, the
capsule endoscope system comprising:

the illuminating device comprising a switching device which switches one of a light-emitting amount and light-emitting time;

a selecting device which transmits two or more pieces of image data obtained by the image pick-up device by the radio transmitting device upon sequentially switching one of the light-emitting amount and light-emitting time, and extracts the image with a wide dynamic range from the two or more images transmitted by the radio transmitting device; and

a recording device which records the transmitted image data selected by the selecting device;

wherein a luminance distribution of the transmitted image data is used as a comparison standard for extracting the image with the wide dynamic range by the selecting device and the selecting device selects the transmitted image data with a largest luminance distribution of the transmitted image data.

15. (Previously Presented) A capsule endoscope apparatus according to Claim 12, wherein an amount of data after compressing the transmitted image data is used as a comparison standard for extracting the image with the wide dynamic range by the selecting device.

16. (Previously Presented) A capsule endoscope system having an illuminating device, an image pick-up device for picking up an image of an illuminated portion, and a radio transmitting device, the capsule endoscope system comprising:

the illuminating device comprising a switching device which switches one of a light-emitting amount and light-emitting time;

a selecting device which transmits two or more pieces of image data obtained by the image pick-up device by the radio transmitting device upon sequentially switching one of the light-emitting amount and light-emitting time, and extracts the image with a wide dynamic range from the two or more images transmitted by the radio transmitting device; and

a recording device which records the transmitted image data selected by the selecting device;

wherein an amount of data after compressing the transmitted image data is used as a comparison standard for extracting the image with the wide dynamic range by the selecting device and the selecting device selects the image having a largest amount of the compressed and transmitted image data.

17. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light irradiated by the illuminating device, presets wherein at least two different illuminating conditions variables comprising a light-emitting amount and a light-emitting time, as well as the change in at least one illuminating variable between image acquisition cycles, are preset, and a switching order thereof in a state where the illuminating light [[has]] having the same wavelength band from one image acquisition cycle to the next image acquisition cycle the at least two different illuminating conditions being a light emitting amount or light emitting time, and automatically switches the illuminating conditions from a first illuminating condition corresponding to a first image acquisition cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;

~~an image pick-up device for sequentially picking up, in a state where the illuminating light has the same wavelength band, images~~ image data of the body cavity ~~a subject, which is irradiated with illuminating light under the different illuminating conditions which are different according to the switching by the switching device;~~

a setting device which sets the light-emitting amount or light-emitting time;

a radio device which transmits by radio waves image data obtained by the image pick-up device;

an image processing device which generates one piece of combined image with an enlarged dynamic range from two or more pieces of transmission image data transmitted by the radio device;

a memory device which stores the combined image; and

a display device which displays the combined image.

18. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light irradiated by the illuminating device, presets wherein at least two different illuminating conditions variables comprising a light-emitting amount and a light-emitting time, as well as the change in at least one illuminating variable between image acquisition cycles, are preset, and a switching order thereof in a state where the illuminating light [[has]] having the same wavelength band from one image acquisition cycle to the next image acquisition cycle the at least two different illuminating conditions being a light-emitting amount or light-emitting time, and automatically switches the illuminating conditions from a first illuminating condition corresponding to a first image acquisition cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;

~~an image pick-up device for sequentially picking up, in a state where the illuminating light has the same wavelength band, images~~ image data of the body cavity ~~a subject, which is irradiated with~~

~~illuminating light under the different illuminating conditions which are different according to the switching by the switching device;~~

a setting device which sets the light-emitting amount or light-emitting time;

an image processing device which generates one piece of combined image with an enlarged dynamic range from two or more pieces of image data obtained by the image pick-up device; and

a radio device which transmits by radio waves the combined image.

19. (Currently Amended) A capsule endoscope apparatus comprising:

an illuminating device for ~~irradiating~~ illuminating light in a body cavity;

a switching device which ~~switches~~ automatically changes at least one illuminating conditions variable from one image acquisition cycle to a next image acquisition cycle in order to provide a difference in illuminating condition between the image acquisition cycles, of the illuminating light irradiated by the illuminating device, presets wherein at least two different illuminating conditions variables comprising a light-emitting amount and a light-emitting time, as well as the change in at least one illuminating variable between image acquisition cycles, are preset, and a switching order thereof in a state where the illuminating light [[has]] having the same wavelength band from one image acquisition cycle to the next image acquisition cycle the at least two different illuminating conditions being a light-emitting amount or light-emitting time, and automatically switches the illuminating conditions from a first illuminating condition corresponding to a first image acquisition cycle to a second illuminating condition corresponding to a subsequent image acquisition cycle;

an image pick-up device for sequentially picking up, ~~in a state where the illuminating light has the same wavelength band, images image data of the body cavity a subject, which is irradiated with illuminating light under the different illuminating conditions which are different according to the switching by the switching device;~~

a setting device which sets the light-emitting amount or light-emitting time; and

a radio device which transmits by radio waves the image data obtained by the image pick-up device.

20. (Previously Presented) A capsule endoscope apparatus according to Claim 19, wherein the light emitting element comprises a plurality of light-emitting elements at different arranging positions, and the switching device selects the light-emitting element which emits light from the plurality of light emitting elements and changes the property of light distribution for the illuminating light.

21-22. (Canceled)

23. (Previously Presented) A capsule endoscope apparatus according to claim 1, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.

24. (Previously Presented) A capsule endoscope apparatus according to claim 7, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.

25. (Previously Presented) A capsule endoscope apparatus according to claim 12, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.

26. (Previously Presented) A capsule endoscope apparatus according to claim 17, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.

27. (Previously Presented) A capsule endoscope apparatus according to claim 18, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.

28. (Previously Presented) A capsule endoscope apparatus according to claim 19, wherein the two different illuminating conditions and the switching order thereof preset by the switching device are set to be changeable by a radio signal.